

**REMARKS**

The undersigned's Remarks are preceded by related comments of the Examiner, presented in small bold-faced type font.

In the Office Action mailed January 11, 2006, the Examiner stated:

**Examiner to request Applicant to provide explicit definition for the claim languages of "geometric cell" and "geometric feature"**

**and**

**Applicant needs to incorporate more explicit language toward the claim invention, and encourages Applicant to schedule an interview**

In response to the Examiner's request, the undersigned held a telephone interview with the Examiner on May 30, 2006, summarized hereby. Also in response to the Examiner's request to incorporate more explicit language toward the claim invention, Applicant has hereby amended the claims, as explained below.

**A) Summary of the telephone interview with the Examiner on May 30, 2006**

Applicant extends his appreciation for the time and opportunity granted by the Examiner to discuss the outstanding issues regarding this application.

During the course of the interview, the undersigned provided explicit definitions for the claim terms “geometric cell”, “geometric feature” and “declarative syntax”. The undersigned also explained the differences between “geometric features”, as used in Applicants’ disclosure, and “features” as used in Qiang Ji and Michael M. Marefat (“Qiang”), which the Examiner relies on to support his rejections. Regarding Qiang, the undersigned explained to the Examiner that the term “feature” takes on different meanings depending on the context in which it is used. This is not only known to those of skill in the art, but it is in fact recognized in Qiang. In support of this, the undersigned referred the Examiner to the following sections of Qiang: page 266, 1<sup>st</sup> col., 2<sup>nd</sup> para., lines 11-17, page 266, 1<sup>st</sup> col., last three lines to 2<sup>nd</sup> col., 1<sup>st</sup> 4 lines, and page 303, whole 3<sup>rd</sup> paragraph. The differences between Applicant’s invention and Qiang’s disclosed methods were explained to the Examiner.

The undersigned also discussed with the Examiner the meaning of “declarative syntax”.

During the interview, the Examiner suggested to amend the claims with more suitable language to define Applicant’s invention.

#### **B) Amendment**

It is respectfully submitted that notwithstanding that Applicant sustains that he has been the first to invent a system and method for identifying some or all of the geometrical cells of a model, by input being easily scriptable (declared by a user in a simple and intuitive syntax), and consisting of the definition of a/a set of constraint/s on the properties of the target cell/s, and maintains the arguments presented in previous amendments, Applicant has hereby amended the claims to provide language that is more suitable to define the invention.

#### **C) Response to the Examiner’s rejections presented in the Office Action mailed January 1, 2006**

The claim language is too broad, because it claims “..for identifying geometric cells of a model”. Examiner refers Applicant to study fig. 4 of Qiang. In that figure, Qiang identified

the cells, blocks, voxels or stock (see pages 269-270) from the first object (fig. 4a with a feature of U shape) or can be called a model that made up of three rectangular blocks or cells. And each of the geometric cells associate to specific geometric feature. Examiner's comment: This analogy captured from the amended preamble of the independent claim 1.

Applicant respectfully submits that this response from the Examiner is no longer applicable to the current set of pending claims, as amended hereby. Applicant respectfully notes that the term "feature", has been removed from the independent claims of the current application. Notwithstanding the amendment, Applicant respectfully notes that Figure 4 of Qiang does not refer at least to the identification of geometric cells by using constraints specified in a declarative syntax.

**It is not clear from Applicant's statement how a cell can be recognized without using a feature of that cell. Applicant requires providing more information to clear the ambiguity of that statement. In the preamble of the claim 1 discloses "a CAD system" also Qiang uses CAD/CAM data for manufacturing applications. It's well known to a person skill in that art to recognize a command line that receives constraints relating to geometric objects or cells in the CAD application (see argument on page 14, last paragraph).**

Applicant respectfully submits that this response from the Examiner is no longer applicable to the current set of pending claims, as amended hereby. The term "feature" has been removed from the independent claims of the current application. In addition, notwithstanding that Applicant respectfully disagrees with the Examiner's statement that it is well known to a person of skill in that art to recognize a command line that receives constraints relating to geometric objects or cells in a CAD application, Applicant notes that the constraints have been further limited, by the current amendment, to a specific selection of constraints.

**It's well known to a person skill in that art to recognize a command line that receives constraints relating to geometric objects or cells in the CAD application. E.g. in claim 2 listed set of constraints, i.e. what a person skill in that art input limitations relating to cell's dimension, topology, attributes, geometrical, etc. Examiner requires more explicit information regarding claim 2's limitation to be able to compare them with CAD's command line (i.e. well known).**

Applicant respectfully notes that this response from the Examiner is no longer applicable to the current set of pending claims, since the limitations contributed by e.g. claim 2 have been added to the independent claims. Claims 2, 4, 6, 8, 10, 12, 14, 16, 20 and 22 have been canceled. Applicant notes that the definition of declarative syntax was further clarified during the telephone interview with the Examiner. Applicant also notes that the independent claims of the application have been further amended to indicate that the declarative syntax is “simple and intuitive”.

**The 11 questions on pages 14-16 raised by Applicant caused Examiner to request Applicant to provide explicit definition for the claim languages of “geometric cell” and “geometric feature” that are in the preamble of the claim 9 and other independent claims. Examiner incorporates by reference an “Auto CAD 2000 Bible” for informational purpose in this office action, since the Applicant and the reference are using the CAD application. The Auto CAD 2000 Bible discloses on pages 683-684 step by step a command e.g., HIDE command, which the 12 steps cover the approximate answers to the Applicant’s questions. Unfortunately they are broadly related to the CAD application, and Examiner does not extract the significant (to easily identify a cell or set of cells of a model using simple and intuitive syntax, as Applicant discloses in specification on page 3 at last paragraph) of the claim invention over the prior art.**

Applicant respectfully submits that this response from the Examiner is no longer applicable to the current set of pending claims, as amended hereby. While the terms “geometric cell” and “geometric feature” were explicitly defined during the interview with the Examiner, the term “feature” has been removed from the independent claims of the current application. In addition, Applicant notes that the definition of declarative syntax was further clarified during the telephone interview with the Examiner. Applicant also notes that the independent claims of the application have been further amended to indicate that the declarative syntax is “simple and intuitive”.

**Claim rejections – 35 USC § 102**

**Claims 1-25 rejected under 35 U.S.C. 102(b) as being anticipated by Qiang J1, Michael M.**

Marefat (hereinafter refers as "Qiang").

1. Claims 1,3 5, 7,9, 11, 13, 15, 17-19, 21 and 23.

Qiang on page 265, first col. teaches that occur at different life-cycle stages of a product. Computer-aided design (CAD), in general, refers to using computers to assist with the various functions in the design process. Engineers consider CAD data to be the data that represent a product or component: in the domain of mechanical components these are often represented as a set of engineering drawings or a solid model of a component, and see fig. 2 on page 268 and figs. 15, 22 that defines the specific geometric feature. Qiang on pages 266-267 teaches Features may also be classified as prismatic or rotational. The attributes associated with features may include dimension, orientation, tolerance, spatial relationship, and topologic components. That is similar to the following claim languages: "A computer system operation method for use with a CAD system in modeling objects, said method providing a means for identifying geometric cells of a model, each of said geometric cells comprising data defining a specific geometric feature with which it is associated the method comprising:"

Applicant respectfully submits that this rejection from the Examiner is no longer applicable to the current set of pending claims, which have been amended. Notwithstanding the amendment, Applicant further notes that the undersigned explained to the Examiner the differences in the usage of the term "features" between Qiang and the Applicant's disclosure, as well as the different methods disclosed by both.

Qiang on page 285, first col. teaches the following limitations: "receiving input comprising one or more constraints relating to geometric cell information;"

Applicant respectfully submits that the Examiner's assertion that Qiang on page 285, first col. teaches the following limitations: "receiving input comprising one or more constraints relating to geometric cell information;" is respectfully traversed. The cited section of Qiang clearly states that what is being referenced are features, as the term is used in the manufacturing field, per Qiang's own acknowledgement, rather than geometric cells:

*"[I]n this article the term is restricted to "shape" features [Shah and Mäntylä 1995] or groupings of geometric and topological entities from a component that correspond to primitive shapes produced by given manufacturing operations and tools]" (Qiang, page 266, emphasis added).*

**Qiang on page 274, first col. teaches In rule-based methods, rules attempt to specify a set of necessary and sufficient preconditions for the patterns found in a feature.**

**Recognition is carried out through an inference control mechanism that determines how to apply these rules to the input data. That applies to the following limitations: " for each constraint and for each of a plurality of geometric cells of a model, processing a declarative syntax specifying at least one of said received input constraints to determine whether the cell meets the requirement of the constraint; and generating a list of geometric cells meeting the requirements of the constraints". Qiang on page 306, section 6.2 teaches in terms of input information requirements, B-Reps are currently the most popular geometric representation scheme in mechanisms for automatic recognition of features from design models. B-Rep provides a description of an object in terms of its surface and edge entities. These surface and edge entities encourage the use of pattern-matching techniques for feature recognition. However, these entities are also sensitive to feature interactions since interactions can significantly change the observed entities or their properties. The main advantages of this scheme are that it is unambiguous and unique (ignoring changes in tessellation) and that both the volumetric and pattern-matching techniques can easily use it.**

Applicant respectfully submits that this rejection from the Examiner is no longer applicable to the current set of pending claims, as amended hereby. The term "feature" has been removed from the independent claims of the current application. Notwithstanding that the rejection is no longer applicable, Applicant respectfully brings to the attention of the Examiner that Applicant's invention is drawn to identifying geometric cells, and not "recognizing manufacturing features" as in Qiang. In addition, the identification of geometric cells is carried out by processing input in the form of constraints specified in declarative syntax, which is intuitive and easy to use.

**2. Claims 2, 4, 6, 8, 10, 12, 14, 16, 20, 22, 24 and 25 [Are Rejected]**

Applicant respectfully submits that this rejection from the Examiner is no longer applicable to the current set of pending claims because claims 2, 4, 6, 8, 10, 12, 14, 16, 20 and 22 have been canceled, and

Application No. 09/815,896  
Request for Continued Examination  
Docket No. 5974-073

claims 24 and 25 depend directly from claim 1, which is now amended and believed to be allowable for reasons set forth the above.

Application No. 09/815,896  
Request for Continued Examination  
Docket No. 5974-073

### CONCLUSION

For the foregoing reasons, allowance of this application is courteously urged.

Claims 1, 3, 5, 7, 9, 11, 13, 15, 17-19, 21 and 23-25 are now pending and believed to be in condition for allowance. Applicant respectfully requests that all pending claims be allowed.

Early and favorable action is respectfully requested.

Please apply any credits or excess charges to our deposit account number 50-0521.

Respectfully submitted,

Date: June 9, 2006



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